



MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

SE SW SEC. 34 T8N R60W 6th P.M.

GREEN TEAL FED 34-27-5HN

ORIGINAL WELLBORE

11 March, 2020

Plan: PROPOSAL #2





Project: WELD COUNTY, COLORADO (NAD 83)
Site: SE SW SEC. 34 T8N R60W 6th P.M.
Well: GREEN TEAL FED 34-27-5HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS

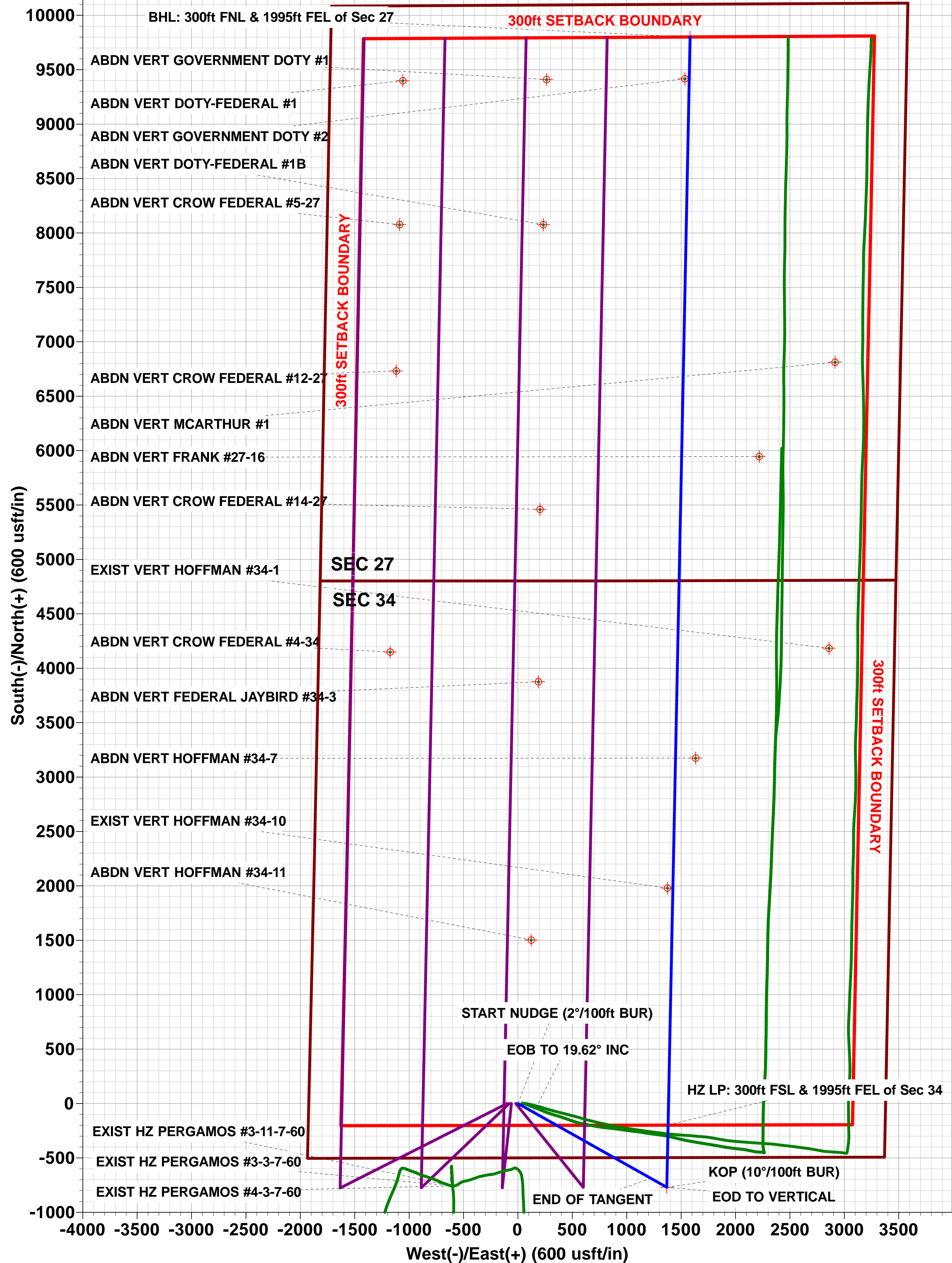
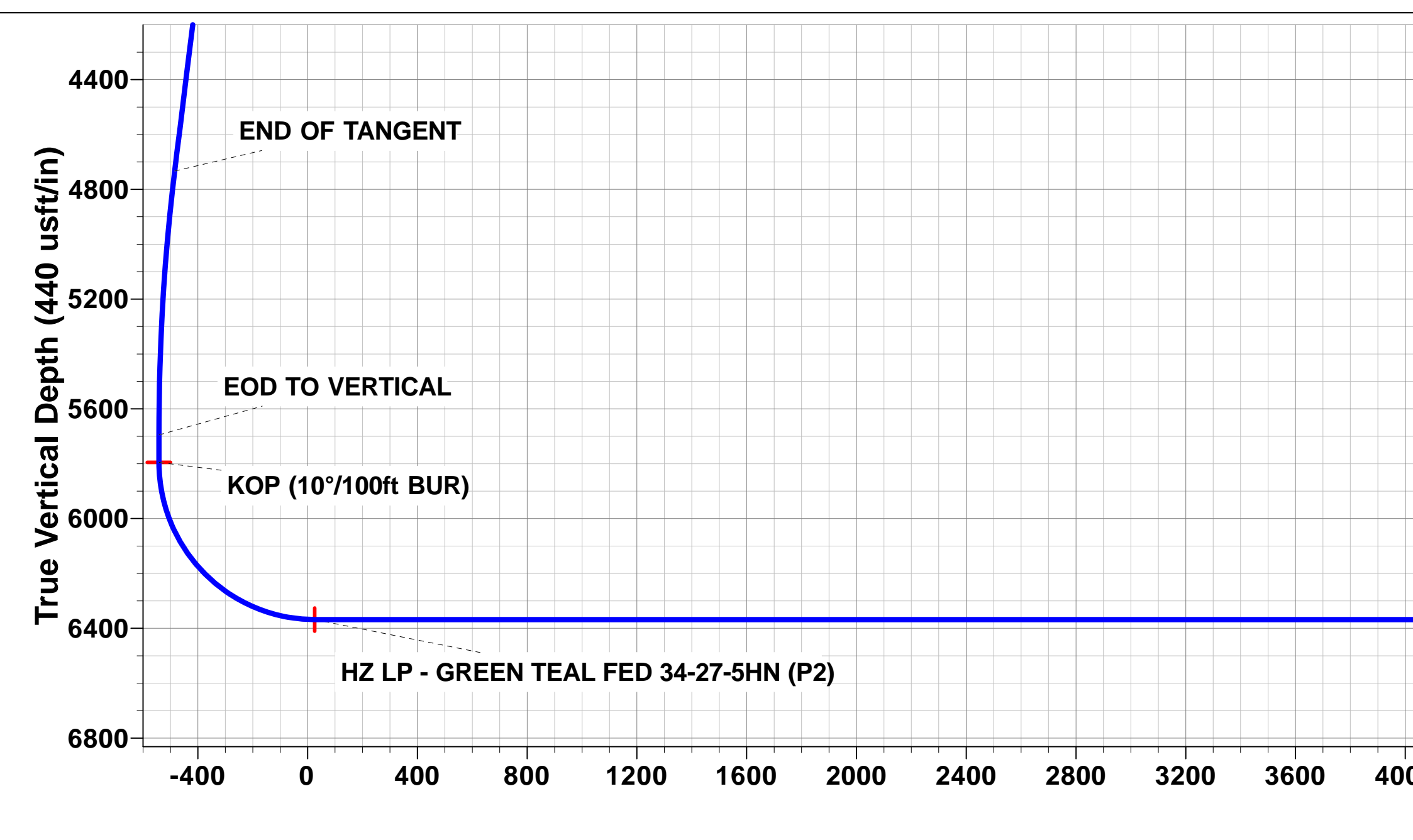
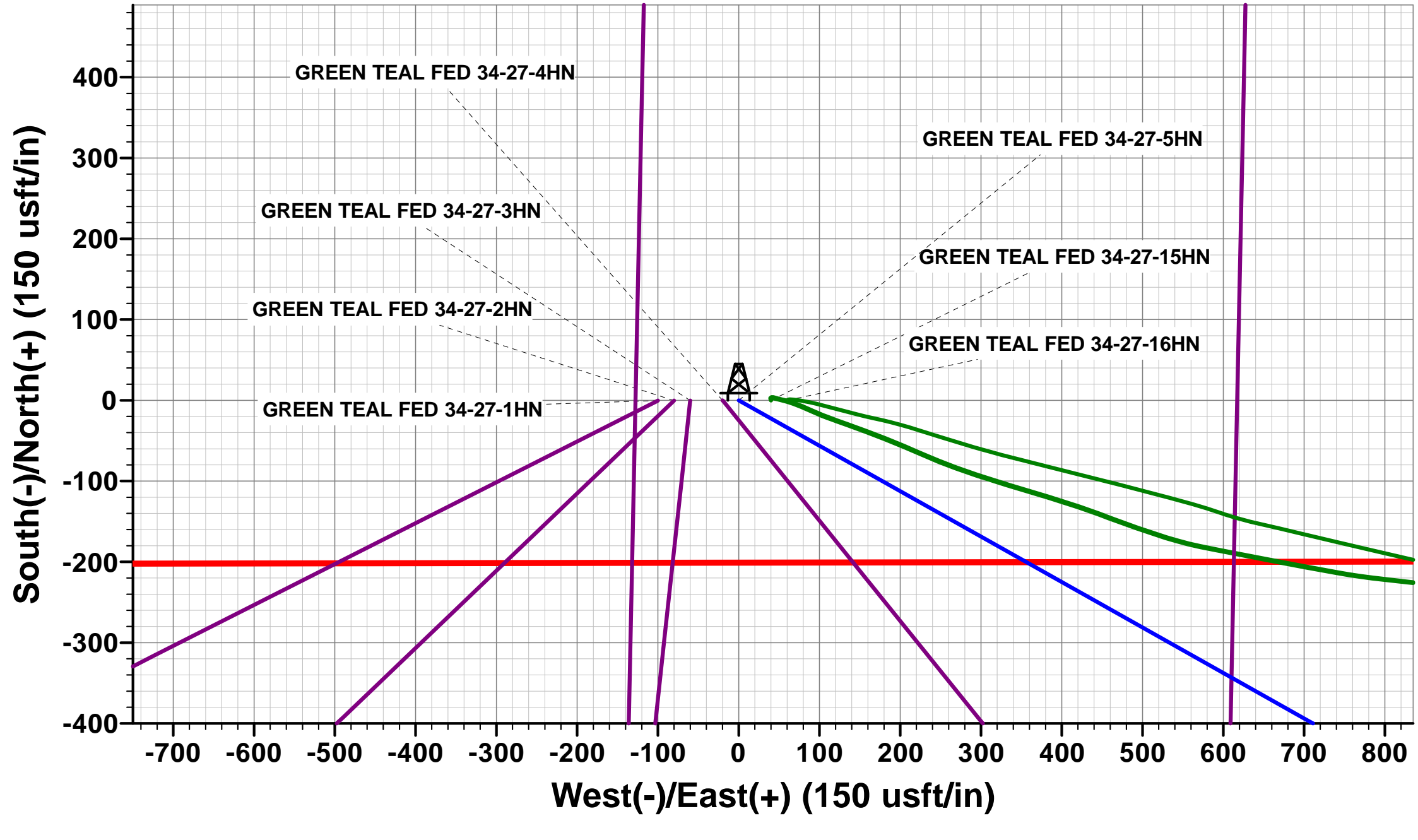
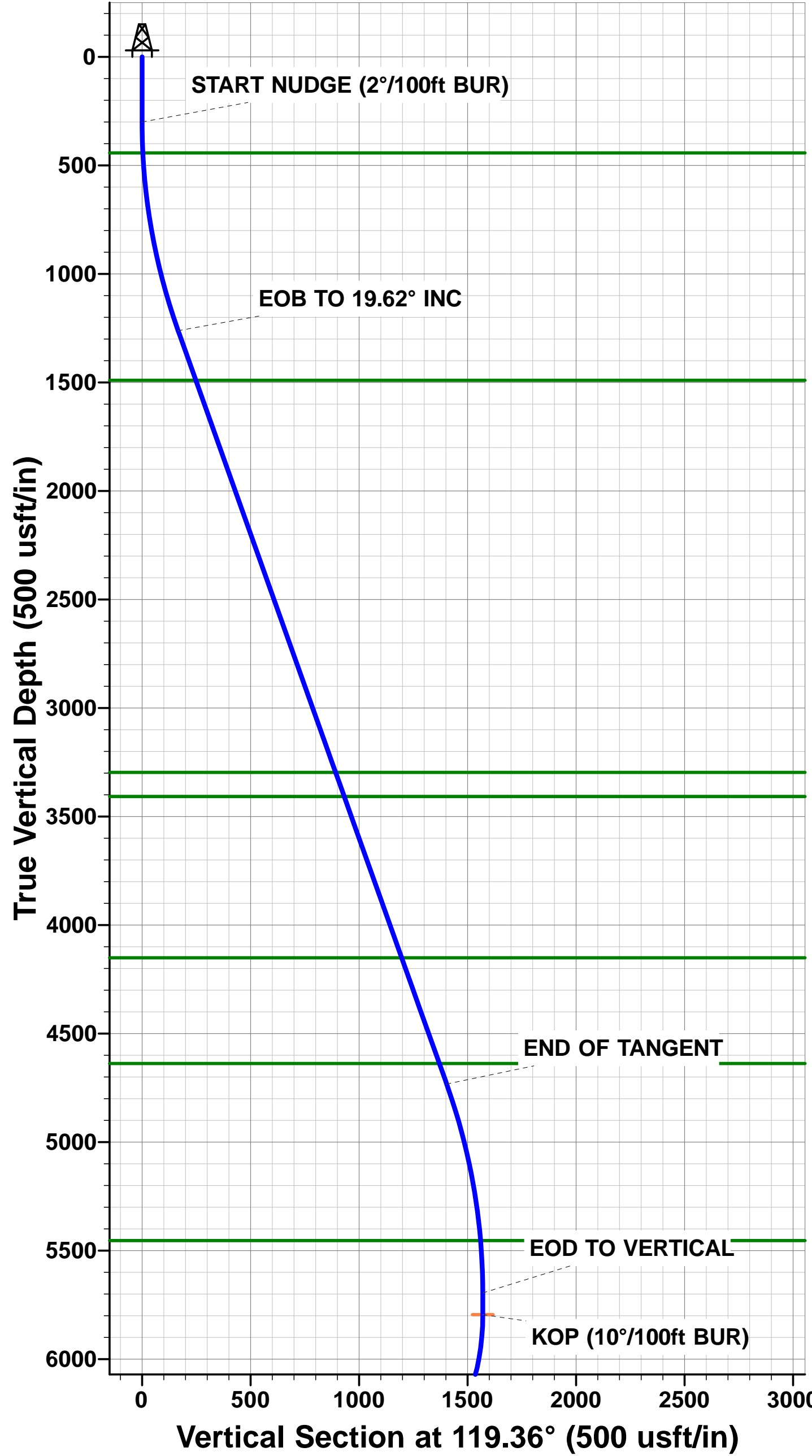
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 500ft FSL & 1922ft FWL of Sec 34
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1281.16	19.62	119.36	1262.09	-81.58	145.01	-57.42	166.38	EOB TO 19.62° INC
4966.03	19.62	119.36	4732.95	-688.31	1223.56	-484.52	1403.88	END OF TANGENT
5947.19	0.00	0.00	5695.04	-769.89	1368.57	-541.94	1570.26	EOD TO VERTICAL
6047.19	0.00	0.00	5795.04	-769.89	1368.57	-541.94	1570.26	KOP (10°/100ft BUR)
6947.19	90.00	1.16	6368.00	-197.05	1380.17	25.42	2143.22	HZ LP: 300ft FSL & 1995ft FEL of Sec 34
16947.44	90.00	1.16	6368.00	9801.16	1582.21	9928.05	12143.47	BHL: 300ft FNL & 1995ft FEL of Sec 27

PROPOSED LOCAL COORDINATES:

SHL: 500ft FSL & 1922ft FWL Sec 34
HZ LP: 300ft FSL & 1995ft FEL Sec 34
BHL: 300ft FNL & 1995ft FEL of Sec 27

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GREEN TEAL FED 34-27-5HN (P2)	5795.04	-769.89	1368.57	40.610764	-104.076113
HZ LP - GREEN TEAL FED 34-27-5HN (P2)	6368.00	-197.05	1380.17	40.612336	-104.076071
BHL - GREEN TEAL FED 34-27-5HN (P2)	6368.00	9801.16	1582.21	40.639779	-104.075341



Planning Report

Database:	Database 1	Local Co-ordinate Reference:	Well GREEN TEAL FED 34-27-5HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4950.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 27' @ 4950.00usft
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	North Reference:	True
Well:	GREEN TEAL FED 34-27-5HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	SE SW SEC. 34 T8N R60W 6th P.M.		
Site Position:		Northing:	1,469,260.15 usft
From:	Lat/Long	Easting:	3,393,696.59 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10 ft
		Latitude:	40.612875
		Longitude:	-104.081907
		Grid Convergence:	0.92 °

Well	GREEN TEAL FED 34-27-5HN		
Well Position	+N/-S	0.72 usft	Northing:
	+E/-W	240.16 usft	Easting:
Position Uncertainty	0.00 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2020-03-11	7.63	66.97	52,266.45037807

Design	PROPOSAL #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,368.00	0.00	0.00	9.17

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,950.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-4,650.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,281.16	19.62	119.36	1,262.09	-3,687.91	-81.58	145.01	2.00	2.00	0.00	119.36	
4,966.03	19.62	119.36	4,732.95	-217.05	-688.31	1,223.56	0.00	0.00	0.00	0.00	
5,947.19	0.00	0.00	5,695.04	745.04	-769.89	1,368.57	2.00	-2.00	0.00	180.00	
6,047.19	0.00	0.00	5,795.04	845.04	-769.89	1,368.57	0.00	0.00	0.00	0.00	KOP - GREEN TEA
6,947.19	90.00	1.16	6,368.00	1,418.00	-197.05	1,380.17	10.00	10.00	0.13	1.16	HZ LP - GREEN TE
16,947.44	90.00	1.16	6,368.00	1,418.00	9,801.16	1,582.21	0.00	0.00	0.00	-77.49	BHL - GREEN TEA

Planning Report

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Site:	SE SW SEC. 34 T8N R60W 6th P.M.	North Reference:	True
Well:	GREEN TEAL FED 34-27-5HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 500ft FSL & 1922ft FWL of Sec 34										
0.00	0.00	0.00	0.00	4,950.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,850.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,750.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
300.00	0.00	0.00	300.00	4,650.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	119.36	399.98	4,550.02	-0.86	1.52	-0.60	2.00	2.00	0.00
Fox Hills Base										
443.06	2.86	119.36	443.00	4,507.00	-1.75	3.11	-1.23	2.00	2.00	0.00
500.00	4.00	119.36	499.84	4,450.16	-3.42	6.08	-2.41	2.00	2.00	0.00
600.00	6.00	119.36	599.45	4,350.55	-7.69	13.68	-5.42	2.00	2.00	0.00
700.00	8.00	119.36	698.70	4,251.30	-13.67	24.30	-9.62	2.00	2.00	0.00
800.00	10.00	119.36	797.47	4,152.53	-21.34	37.93	-15.02	2.00	2.00	0.00
900.00	12.00	119.36	895.62	4,054.38	-30.69	54.56	-21.61	2.00	2.00	0.00
1,000.00	14.00	119.36	993.06	3,956.94	-41.72	74.17	-29.37	2.00	2.00	0.00
1,100.00	16.00	119.36	1,089.64	3,860.36	-54.41	96.72	-38.30	2.00	2.00	0.00
1,200.00	18.00	119.36	1,185.27	3,764.73	-68.75	122.20	-48.39	2.00	2.00	0.00
EOB TO 19.62° INC										
1,281.16	19.62	119.36	1,262.09	3,687.91	-81.58	145.01	-57.42	2.00	2.00	0.00
1,300.00	19.62	119.36	1,279.84	3,670.16	-84.68	150.53	-59.61	0.00	0.00	0.00
1,400.00	19.62	119.36	1,374.03	3,575.97	-101.14	179.80	-71.20	0.00	0.00	0.00
1,500.00	19.62	119.36	1,468.22	3,481.78	-117.61	209.07	-82.79	0.00	0.00	0.00
Pierre Shale Top										
1,523.12	19.62	119.36	1,490.00	3,460.00	-121.42	215.83	-85.47	0.00	0.00	0.00
1,600.00	19.62	119.36	1,562.41	3,387.59	-134.08	238.34	-94.38	0.00	0.00	0.00
1,700.00	19.62	119.36	1,656.61	3,293.39	-150.54	267.60	-105.97	0.00	0.00	0.00
1,800.00	19.62	119.36	1,750.80	3,199.20	-167.01	296.87	-117.56	0.00	0.00	0.00
1,900.00	19.62	119.36	1,844.99	3,105.01	-183.47	326.14	-129.15	0.00	0.00	0.00
2,000.00	19.62	119.36	1,939.18	3,010.82	-199.94	355.41	-140.74	0.00	0.00	0.00
2,100.00	19.62	119.36	2,033.37	2,916.63	-216.40	384.68	-152.33	0.00	0.00	0.00
2,200.00	19.62	119.36	2,127.57	2,822.43	-232.87	413.95	-163.92	0.00	0.00	0.00
2,300.00	19.62	119.36	2,221.76	2,728.24	-249.33	443.22	-175.51	0.00	0.00	0.00
2,400.00	19.62	119.36	2,315.95	2,634.05	-265.80	472.49	-187.10	0.00	0.00	0.00
2,500.00	19.62	119.36	2,410.14	2,539.86	-282.27	501.76	-198.69	0.00	0.00	0.00
2,600.00	19.62	119.36	2,504.34	2,445.66	-298.73	531.03	-210.28	0.00	0.00	0.00
2,700.00	19.62	119.36	2,598.53	2,351.47	-315.20	560.30	-221.88	0.00	0.00	0.00
2,800.00	19.62	119.36	2,692.72	2,257.28	-331.66	589.57	-233.47	0.00	0.00	0.00
2,900.00	19.62	119.36	2,786.91	2,163.09	-348.13	618.84	-245.06	0.00	0.00	0.00
3,000.00	19.62	119.36	2,881.10	2,068.90	-364.59	648.11	-256.65	0.00	0.00	0.00
3,100.00	19.62	119.36	2,975.30	1,974.70	-381.06	677.38	-268.24	0.00	0.00	0.00
3,200.00	19.62	119.36	3,069.49	1,880.51	-397.53	706.65	-279.83	0.00	0.00	0.00
3,300.00	19.62	119.36	3,163.68	1,786.32	-413.99	735.92	-291.42	0.00	0.00	0.00
3,400.00	19.62	119.36	3,257.87	1,692.13	-430.46	765.19	-303.01	0.00	0.00	0.00
Richard Sandstone										
3,441.54	19.62	119.36	3,297.00	1,653.00	-437.30	777.35	-307.82	0.00	0.00	0.00
3,500.00	19.62	119.36	3,352.07	1,597.93	-446.92	794.46	-314.60	0.00	0.00	0.00
Parkman Sandstone										
3,559.38	19.62	119.36	3,408.00	1,542.00	-456.70	811.84	-321.48	0.00	0.00	0.00
3,600.00	19.62	119.36	3,446.26	1,503.74	-463.39	823.73	-326.19	0.00	0.00	0.00
3,700.00	19.62	119.36	3,540.45	1,409.55	-479.85	853.00	-337.78	0.00	0.00	0.00
3,800.00	19.62	119.36	3,634.64	1,315.36	-496.32	882.27	-349.37	0.00	0.00	0.00
3,900.00	19.62	119.36	3,728.83	1,221.17	-512.79	911.54	-360.96	0.00	0.00	0.00
4,000.00	19.62	119.36	3,823.03	1,126.97	-529.25	940.81	-372.55	0.00	0.00	0.00

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Well:	GREEN TEAL FED 34-27-5HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,100.00	19.62	119.36	3,917.22	1,032.78	-545.72	970.08	-384.14	0.00	0.00	0.00
4,200.00	19.62	119.36	4,011.41	938.59	-562.18	999.34	-395.73	0.00	0.00	0.00
4,300.00	19.62	119.36	4,105.60	844.40	-578.65	1,028.61	-407.32	0.00	0.00	0.00
Sussex Sandstone										
4,348.20	19.62	119.36	4,151.00	799.00	-586.58	1,042.72	-412.91	0.00	0.00	0.00
4,400.00	19.62	119.36	4,199.80	750.20	-595.11	1,057.88	-418.92	0.00	0.00	0.00
4,500.00	19.62	119.36	4,293.99	656.01	-611.58	1,087.15	-430.51	0.00	0.00	0.00
4,600.00	19.62	119.36	4,388.18	561.82	-628.04	1,116.42	-442.10	0.00	0.00	0.00
4,700.00	19.62	119.36	4,482.37	467.63	-644.51	1,145.69	-453.69	0.00	0.00	0.00
4,800.00	19.62	119.36	4,576.56	373.44	-660.98	1,174.96	-465.28	0.00	0.00	0.00
Shannon Sandstone										
4,865.22	19.62	119.36	4,638.00	312.00	-671.72	1,194.05	-472.84	0.00	0.00	0.00
4,900.00	19.62	119.36	4,670.76	279.24	-677.44	1,204.23	-476.87	0.00	0.00	0.00
END OF TANGENT										
4,966.03	19.62	119.36	4,732.95	217.05	-688.31	1,223.56	-484.52	0.00	0.00	0.00
5,000.00	18.94	119.36	4,765.02	184.98	-693.81	1,233.34	-488.39	2.00	-2.00	0.00
5,100.00	16.94	119.36	4,860.15	89.85	-708.92	1,260.19	-499.03	2.00	-2.00	0.00
5,200.00	14.94	119.36	4,956.29	-6.29	-722.39	1,284.13	-508.51	2.00	-2.00	0.00
5,300.00	12.94	119.36	5,053.34	-103.34	-734.20	1,305.13	-516.82	2.00	-2.00	0.00
5,400.00	10.94	119.36	5,151.17	-201.17	-744.35	1,323.16	-523.96	2.00	-2.00	0.00
5,500.00	8.94	119.36	5,249.67	-299.67	-752.81	1,338.21	-529.92	2.00	-2.00	0.00
5,600.00	6.94	119.36	5,348.70	-398.70	-759.59	1,350.26	-534.69	2.00	-2.00	0.00
5,700.00	4.94	119.36	5,448.16	-498.16	-764.66	1,359.28	-538.27	2.00	-2.00	0.00
TeePee Buttes										
5,705.86	4.83	119.36	5,454.00	-504.00	-764.91	1,359.72	-538.44	2.00	-2.00	0.00
5,800.00	2.94	119.36	5,547.92	-597.92	-768.04	1,365.28	-540.64	2.00	-2.00	0.00
5,900.00	0.94	119.36	5,647.85	-697.85	-769.70	1,368.23	-541.81	2.00	-2.00	0.00
EOD TO VERTICAL										
5,947.19	0.00	0.00	5,695.04	-745.04	-769.89	1,368.57	-541.94	2.00	-2.00	0.00
6,000.00	0.00	0.00	5,747.85	-797.85	-769.89	1,368.57	-541.94	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,047.19	0.00	0.00	5,795.04	-845.04	-769.89	1,368.57	-541.94	0.00	0.00	0.00
6,100.00	5.28	1.16	5,847.78	-897.78	-767.46	1,368.62	-539.54	10.00	10.00	0.00
6,200.00	15.28	1.16	5,946.05	-996.05	-749.64	1,368.98	-521.88	10.00	10.00	0.00
6,300.00	25.28	1.16	6,039.73	-1,089.73	-715.03	1,369.68	-487.60	10.00	10.00	0.00
Sharon Springs										
6,386.66	33.95	1.16	6,115.00	-1,165.00	-672.25	1,370.55	-445.24	10.00	10.00	0.00
6,400.00	35.28	1.16	6,125.97	-1,175.97	-664.68	1,370.70	-437.74	10.00	10.00	0.00
Niobrara Top										
6,430.00	38.28	1.16	6,150.00	-1,200.00	-646.72	1,371.06	-419.95	10.00	10.00	0.00
6,500.00	45.28	1.16	6,202.17	-1,252.17	-600.12	1,372.01	-373.79	10.00	10.00	0.00
6,600.00	55.28	1.16	6,265.99	-1,315.99	-523.31	1,373.56	-297.72	10.00	10.00	0.00
Niobrara B2 Chalk Top										
6,607.11	55.99	1.16	6,270.00	-1,320.00	-517.44	1,373.68	-291.91	10.00	10.00	0.00
6,700.00	65.28	1.16	6,315.50	-1,365.50	-436.59	1,375.32	-211.83	10.00	10.00	0.00
Niobrara C Chalk Top										
6,767.33	72.01	1.16	6,340.00	-1,390.00	-373.93	1,376.59	-149.77	10.00	10.00	0.00
6,800.00	75.28	1.16	6,349.20	-1,399.20	-342.60	1,377.22	-118.73	10.00	10.00	0.00
Niobrara C Chalk Target Top										
6,851.33	80.41	1.16	6,360.00	-1,410.00	-292.44	1,378.24	-69.06	10.00	10.00	0.00
6,900.00	85.28	1.16	6,366.06	-1,416.06	-244.18	1,379.22	-21.25	10.00	10.00	0.00
HZ LP: 300ft FSL & 1995ft FEL of Sec 34 - Niobrara C Chalk Landing Point										

Planning Report

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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 27' @ 4950.00usft
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Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,947.19	90.00	1.16	6,368.00	-1,418.00	-197.05	1,380.17	25.42	10.00	10.00	0.00
7,000.00	90.00	1.16	6,368.00	-1,418.00	-144.25	1,381.24	77.72	0.00	0.00	0.00
7,100.00	90.00	1.16	6,368.00	-1,418.00	-44.27	1,383.26	176.74	0.00	0.00	0.00
7,200.00	90.00	1.16	6,368.00	-1,418.00	55.71	1,385.29	275.77	0.00	0.00	0.00
7,300.00	90.00	1.16	6,368.00	-1,418.00	155.69	1,387.31	374.79	0.00	0.00	0.00
7,400.00	90.00	1.16	6,368.00	-1,418.00	255.67	1,389.34	473.82	0.00	0.00	0.00
7,500.00	90.00	1.16	6,368.01	-1,418.01	355.65	1,391.36	572.84	0.00	0.00	0.00
7,600.00	90.00	1.16	6,368.01	-1,418.01	455.63	1,393.39	671.86	0.00	0.00	0.00
7,700.00	90.00	1.16	6,368.01	-1,418.01	555.61	1,395.41	770.89	0.00	0.00	0.00
7,800.00	90.00	1.16	6,368.01	-1,418.01	655.59	1,397.43	869.91	0.00	0.00	0.00
7,900.00	90.00	1.16	6,368.01	-1,418.01	755.57	1,399.46	968.94	0.00	0.00	0.00
8,000.00	90.00	1.16	6,368.01	-1,418.01	855.55	1,401.48	1,067.96	0.00	0.00	0.00
8,100.00	90.00	1.16	6,368.01	-1,418.01	955.52	1,403.51	1,166.99	0.00	0.00	0.00
8,200.00	90.00	1.16	6,368.01	-1,418.01	1,055.50	1,405.53	1,266.01	0.00	0.00	0.00
8,300.00	90.00	1.16	6,368.01	-1,418.01	1,155.48	1,407.55	1,365.03	0.00	0.00	0.00
8,400.00	90.00	1.16	6,368.01	-1,418.01	1,255.46	1,409.58	1,464.06	0.00	0.00	0.00
8,500.00	90.00	1.16	6,368.01	-1,418.01	1,355.44	1,411.60	1,563.08	0.00	0.00	0.00
8,600.00	90.00	1.16	6,368.01	-1,418.01	1,455.42	1,413.62	1,662.11	0.00	0.00	0.00
8,700.00	90.00	1.16	6,368.01	-1,418.01	1,555.40	1,415.65	1,761.13	0.00	0.00	0.00
8,800.00	90.00	1.16	6,368.01	-1,418.01	1,655.38	1,417.67	1,860.16	0.00	0.00	0.00
8,900.00	90.00	1.16	6,368.02	-1,418.02	1,755.36	1,419.69	1,959.18	0.00	0.00	0.00
9,000.00	90.00	1.16	6,368.02	-1,418.02	1,855.34	1,421.72	2,058.20	0.00	0.00	0.00
9,100.00	90.00	1.16	6,368.02	-1,418.02	1,955.32	1,423.74	2,157.23	0.00	0.00	0.00
9,200.00	90.00	1.16	6,368.02	-1,418.02	2,055.30	1,425.76	2,256.25	0.00	0.00	0.00
9,300.00	90.00	1.16	6,368.02	-1,418.02	2,155.28	1,427.78	2,355.28	0.00	0.00	0.00
9,400.00	90.00	1.16	6,368.02	-1,418.02	2,255.26	1,429.81	2,454.30	0.00	0.00	0.00
9,500.00	90.00	1.16	6,368.02	-1,418.02	2,355.24	1,431.83	2,553.32	0.00	0.00	0.00
9,600.00	90.00	1.16	6,368.02	-1,418.02	2,455.22	1,433.85	2,652.35	0.00	0.00	0.00
9,700.00	90.00	1.16	6,368.02	-1,418.02	2,555.20	1,435.87	2,751.37	0.00	0.00	0.00
9,800.00	90.00	1.16	6,368.02	-1,418.02	2,655.18	1,437.90	2,850.40	0.00	0.00	0.00
9,900.00	90.00	1.16	6,368.02	-1,418.02	2,755.16	1,439.92	2,949.42	0.00	0.00	0.00
10,000.00	90.00	1.16	6,368.02	-1,418.02	2,855.14	1,441.94	3,048.44	0.00	0.00	0.00
10,100.00	90.00	1.16	6,368.02	-1,418.02	2,955.12	1,443.96	3,147.47	0.00	0.00	0.00
10,200.00	90.00	1.16	6,368.02	-1,418.02	3,055.10	1,445.98	3,246.49	0.00	0.00	0.00
10,300.00	90.00	1.16	6,368.02	-1,418.02	3,155.07	1,448.01	3,345.52	0.00	0.00	0.00
10,400.00	90.00	1.16	6,368.02	-1,418.02	3,255.05	1,450.03	3,444.54	0.00	0.00	0.00
10,500.00	90.00	1.16	6,368.02	-1,418.02	3,355.03	1,452.05	3,543.56	0.00	0.00	0.00
10,600.00	90.00	1.16	6,368.02	-1,418.02	3,455.01	1,454.07	3,642.59	0.00	0.00	0.00
10,700.00	90.00	1.16	6,368.02	-1,418.02	3,554.99	1,456.09	3,741.61	0.00	0.00	0.00
10,800.00	90.00	1.16	6,368.02	-1,418.02	3,654.97	1,458.11	3,840.64	0.00	0.00	0.00
10,900.00	90.00	1.16	6,368.02	-1,418.02	3,754.95	1,460.13	3,939.66	0.00	0.00	0.00
11,000.00	90.00	1.16	6,368.02	-1,418.02	3,854.93	1,462.16	4,038.68	0.00	0.00	0.00
11,100.00	90.00	1.16	6,368.02	-1,418.02	3,954.91	1,464.18	4,137.71	0.00	0.00	0.00
11,200.00	90.00	1.16	6,368.02	-1,418.02	4,054.89	1,466.20	4,236.73	0.00	0.00	0.00
11,300.00	90.00	1.16	6,368.02	-1,418.02	4,154.87	1,468.22	4,335.75	0.00	0.00	0.00
11,400.00	90.00	1.16	6,368.02	-1,418.02	4,254.85	1,470.24	4,434.78	0.00	0.00	0.00
11,500.00	90.00	1.16	6,368.02	-1,418.02	4,354.83	1,472.26	4,533.80	0.00	0.00	0.00
11,600.00	90.00	1.16	6,368.02	-1,418.02	4,454.81	1,474.28	4,632.83	0.00	0.00	0.00
11,700.00	90.00	1.16	6,368.02	-1,418.02	4,554.79	1,476.30	4,731.85	0.00	0.00	0.00
11,800.00	90.00	1.16	6,368.02	-1,418.02	4,654.77	1,478.32	4,830.87	0.00	0.00	0.00
11,900.00	90.00	1.16	6,368.02	-1,418.02	4,754.75	1,480.34	4,929.90	0.00	0.00	0.00
12,000.00	90.00	1.16	6,368.02	-1,418.02	4,854.73	1,482.36	5,028.92	0.00	0.00	0.00
12,100.00	90.00	1.16	6,368.02	-1,418.02	4,954.71	1,484.38	5,127.95	0.00	0.00	0.00
12,200.00	90.00	1.16	6,368.02	-1,418.02	5,054.69	1,486.40	5,226.97	0.00	0.00	0.00

Planning Report

Database:	Database 1	Local Co-ordinate Reference:	Well GREEN TEAL FED 34-27-5HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4950.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 27' @ 4950.00usft
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	North Reference:	True
Well:	GREEN TEAL FED 34-27-5HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,300.00	90.00	1.16	6,368.02	-1,418.02	5,154.67	1,488.42	5,325.99	0.00	0.00	0.00
12,400.00	90.00	1.16	6,368.02	-1,418.02	5,254.65	1,490.44	5,425.02	0.00	0.00	0.00
12,500.00	90.00	1.16	6,368.02	-1,418.02	5,354.63	1,492.46	5,524.04	0.00	0.00	0.00
12,600.00	90.00	1.16	6,368.02	-1,418.02	5,454.61	1,494.48	5,623.06	0.00	0.00	0.00
12,700.00	90.00	1.16	6,368.02	-1,418.02	5,554.58	1,496.50	5,722.09	0.00	0.00	0.00
12,800.00	90.00	1.16	6,368.02	-1,418.02	5,654.56	1,498.52	5,821.11	0.00	0.00	0.00
12,900.00	90.00	1.16	6,368.02	-1,418.02	5,754.54	1,500.54	5,920.13	0.00	0.00	0.00
13,000.00	90.00	1.16	6,368.02	-1,418.02	5,854.52	1,502.56	6,019.16	0.00	0.00	0.00
13,100.00	90.00	1.16	6,368.02	-1,418.02	5,954.50	1,504.58	6,118.18	0.00	0.00	0.00
13,200.00	90.00	1.16	6,368.02	-1,418.02	6,054.48	1,506.60	6,217.21	0.00	0.00	0.00
13,300.00	90.00	1.16	6,368.02	-1,418.02	6,154.46	1,508.62	6,316.23	0.00	0.00	0.00
13,400.00	90.00	1.16	6,368.02	-1,418.02	6,254.44	1,510.64	6,415.25	0.00	0.00	0.00
13,500.00	90.00	1.16	6,368.02	-1,418.02	6,354.42	1,512.66	6,514.28	0.00	0.00	0.00
13,600.00	90.00	1.16	6,368.02	-1,418.02	6,454.40	1,514.68	6,613.30	0.00	0.00	0.00
13,700.00	90.00	1.16	6,368.02	-1,418.02	6,554.38	1,516.70	6,712.32	0.00	0.00	0.00
13,800.00	90.00	1.16	6,368.02	-1,418.02	6,654.36	1,518.71	6,811.35	0.00	0.00	0.00
13,900.00	90.00	1.16	6,368.02	-1,418.02	6,754.34	1,520.73	6,910.37	0.00	0.00	0.00
14,000.00	90.00	1.16	6,368.02	-1,418.02	6,854.32	1,522.75	7,009.39	0.00	0.00	0.00
14,100.00	90.00	1.16	6,368.02	-1,418.02	6,954.30	1,524.77	7,108.42	0.00	0.00	0.00
14,200.00	90.00	1.16	6,368.02	-1,418.02	7,054.28	1,526.79	7,207.44	0.00	0.00	0.00
14,300.00	90.00	1.16	6,368.02	-1,418.02	7,154.26	1,528.81	7,306.46	0.00	0.00	0.00
14,400.00	90.00	1.16	6,368.02	-1,418.02	7,254.24	1,530.82	7,405.49	0.00	0.00	0.00
14,500.00	90.00	1.16	6,368.02	-1,418.02	7,354.22	1,532.84	7,504.51	0.00	0.00	0.00
14,600.00	90.00	1.16	6,368.02	-1,418.02	7,454.20	1,534.86	7,603.53	0.00	0.00	0.00
14,700.00	90.00	1.16	6,368.02	-1,418.02	7,554.18	1,536.88	7,702.56	0.00	0.00	0.00
14,800.00	90.00	1.16	6,368.02	-1,418.02	7,654.16	1,538.90	7,801.58	0.00	0.00	0.00
14,900.00	90.00	1.16	6,368.02	-1,418.02	7,754.14	1,540.91	7,900.61	0.00	0.00	0.00
15,000.00	90.00	1.16	6,368.02	-1,418.02	7,854.12	1,542.93	7,999.63	0.00	0.00	0.00
15,100.00	90.00	1.16	6,368.01	-1,418.01	7,954.10	1,544.95	8,098.65	0.00	0.00	0.00
15,200.00	90.00	1.16	6,368.01	-1,418.01	8,054.08	1,546.97	8,197.68	0.00	0.00	0.00
15,300.00	90.00	1.16	6,368.01	-1,418.01	8,154.06	1,548.98	8,296.70	0.00	0.00	0.00
15,400.00	90.00	1.16	6,368.01	-1,418.01	8,254.03	1,551.00	8,395.72	0.00	0.00	0.00
15,500.00	90.00	1.16	6,368.01	-1,418.01	8,354.01	1,553.02	8,494.75	0.00	0.00	0.00
15,600.00	90.00	1.16	6,368.01	-1,418.01	8,453.99	1,555.04	8,593.77	0.00	0.00	0.00
15,700.00	90.00	1.16	6,368.01	-1,418.01	8,553.97	1,557.05	8,692.79	0.00	0.00	0.00
15,800.00	90.00	1.16	6,368.01	-1,418.01	8,653.95	1,559.07	8,791.82	0.00	0.00	0.00
15,900.00	90.00	1.16	6,368.01	-1,418.01	8,753.93	1,561.09	8,890.84	0.00	0.00	0.00
16,000.00	90.00	1.16	6,368.01	-1,418.01	8,853.91	1,563.10	8,989.86	0.00	0.00	0.00
16,100.00	90.00	1.16	6,368.01	-1,418.01	8,953.89	1,565.12	9,088.88	0.00	0.00	0.00
16,200.00	90.00	1.16	6,368.01	-1,418.01	9,053.87	1,567.14	9,187.91	0.00	0.00	0.00
16,300.00	90.00	1.16	6,368.01	-1,418.01	9,153.85	1,569.15	9,286.93	0.00	0.00	0.00
16,400.00	90.00	1.16	6,368.01	-1,418.01	9,253.83	1,571.17	9,385.95	0.00	0.00	0.00
16,500.00	90.00	1.16	6,368.00	-1,418.00	9,353.81	1,573.19	9,484.98	0.00	0.00	0.00
16,600.00	90.00	1.16	6,368.00	-1,418.00	9,453.79	1,575.20	9,584.00	0.00	0.00	0.00
16,700.00	90.00	1.16	6,368.00	-1,418.00	9,553.77	1,577.22	9,683.02	0.00	0.00	0.00
16,800.00	90.00	1.16	6,368.00	-1,418.00	9,653.75	1,579.24	9,782.05	0.00	0.00	0.00
16,900.00	90.00	1.16	6,368.00	-1,418.00	9,753.73	1,581.25	9,881.07	0.00	0.00	0.00
BHL: 300ft FNL & 1995ft FEL of Sec 27										
16,947.44	90.00	1.16	6,368.00	-1,418.00	9,801.16	1,582.21	9,928.05	0.00	0.00	0.00

Planning Report

Database:	Database 1	Local Co-ordinate Reference:	Well GREEN TEAL FED 34-27-5HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4950.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 27' @ 4950.00usft
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	North Reference:	True
Well:	GREEN TEAL FED 34-27-5HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
443.06	443.00	Fox Hills Base				
1,523.12	1,490.00	Pierre Shale Top				
3,441.54	3,297.00	Richard Sandstone				
3,559.38	3,408.00	Parkman Sandstone				
4,348.20	4,151.00	Sussex Sandstone				
4,865.22	4,638.00	Shannon Sandstone				
5,705.86	5,454.00	TeePee Buttes				
6,386.66	6,115.00	Sharon Springs				
6,430.00	6,150.00	Niobrara Top				
6,607.11	6,270.00	Niobrara B2 Chalk Top				
6,767.33	6,340.00	Niobrara C Chalk Top				
6,851.33	6,360.00	Niobrara C Chalk Target Top				
6,947.19	6,368.00	Niobrara C Chalk Landing Point				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 500ft FSL & 1922ft FWL of Sec 34
300.00	300.00	0.00	0.00	START NUDGE (2"/100ft BUR)
1,281.16	1,262.09	-81.58	145.01	EOB TO 19.62° INC
4,966.03	4,732.95	-688.31	1,223.56	END OF TANGENT
5,947.19	5,695.04	-769.89	1,368.57	EOD TO VERTICAL
6,047.19	5,795.04	-769.89	1,368.57	KOP (10°/100ft BUR)
6,947.19	6,368.00	-197.05	1,380.17	HZ LP: 300ft FSL & 1995ft FEL of Sec 34
16,947.44	6,368.00	9,801.16	1,582.21	BHL: 300ft FNL & 1995ft FEL of Sec 27